

# The Impact of Gaokao High-Stakes Testing on Student Mental Health in China: An Analysis of Stress Levels and Coping Mechanisms Among Senior High School Students

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## Abstract

The Gaokao, China's National College Entrance Examination, is a high-stakes test that significantly impacts students' academic futures and career opportunities. This paper examines the mental health implications of the Gaokao, focusing on stress levels and coping mechanisms among senior high school students. It explores the societal and educational significance of the Gaokao, identifies specific stressors related to its preparation and performance, and analyzes the correlation between stress levels and academic performance. Additionally, the paper discusses the short-term and long-term effects of stress on students' overall well-being and offers recommendations for immediate and long-term interventions. These strategies aim to reduce the adverse effects of stress, enhance students' mental health, and improve academic outcomes. The findings highlight the need for a balanced approach to stress management and support systems to ensure students' success and well-being in the face of high-stakes examinations.

**Keywords:** Gaokao, high-stakes testing, student stress, mental health, academic performance, coping mechanisms

## 1. Introduction

### *1.1 Overview of the Gaokao Exam and Its Significance in the Chinese Education System*

The National College Entrance Examination, commonly known as the Gaokao, is the most critical examination in the Chinese education system. Held annually, it serves as the primary gateway for students to gain admission to higher education institutions in China. The Gaokao is not only a pivotal academic assessment but also a significant social event that shapes the future trajectories of millions of Chinese students each year.

The Gaokao was first introduced in 1952 following the establishment of the People's Republic of China, with the aim of standardizing university admissions across the nation. This examination was suspended during the Cultural Revolution (1966-1976) but was reinstated in 1977, marking a crucial turn in China's educational and economic reforms. The reinstatement of the Gaokao symbolized a return to merit-based advancement, emphasizing the importance of education in personal and national development.

Typically held over two or three days in early June, the exam consists of mandatory subjects such as Chinese language and literature, mathematics, and a foreign language (usually English). Additionally, students choose either a science track (which includes physics, chemistry, and biology) or a humanities track (which includes history, geography, and politics). The total score of the Gaokao varies by region but generally ranges from 750 to 900 points.

The Gaokao's significance cannot be overstated, as it serves multiple critical functions in the Chinese education system. Firstly, it is the primary means of selecting students for admission to universities and colleges. The

scores achieved in the Gaokao largely determine the tier of higher education institutions a student can attend, influencing their academic and professional futures. Secondly, the Gaokao provides a standardized assessment across a vast and diverse country, ensuring fairness in university admissions and giving all students, regardless of their background, an equal opportunity to compete based on their academic abilities. This standardization shapes the focus of secondary education in China, with high schools dedicating significant resources to test preparation, often dictating teaching methodologies, study materials, and the overall learning environment.

Moreover, for many students, particularly those from rural or underprivileged backgrounds, the Gaokao represents a critical opportunity for social mobility. A high score can enable students to access prestigious universities, leading to better job prospects and improved socio-economic status. Additionally, the Gaokao is deeply ingrained in Chinese culture, seen as a rite of passage for young people and associated with familial pride and societal expectations. Success in the Gaokao is often viewed as a reflection of personal and familial honor, adding significant emotional and psychological weight to the examination process.

In summary, the Gaokao is a cornerstone of the Chinese education system, playing a crucial role in university admissions and shaping the educational landscape of the country. Its significance extends beyond academics, influencing social mobility, cultural values, and the lives of millions of students and their families. Understanding the Gaokao's impact is essential for comprehending the broader context of education and societal expectations in China.

### *1.2 Societal and Educational Implications of Gaokao*

The Gaokao examination exerts profound societal and educational implications in China, affecting individual students, their families, the broader educational system, and society as a whole.

The Gaokao is often viewed as a high-stakes, high-pressure event that significantly impacts students' mental health and well-being. The intense competition and immense pressure to perform well can lead to elevated levels of stress, anxiety, and even depression among students. The societal expectation to excel in the Gaokao creates a culture of high academic achievement, where students and their families invest substantial time, money, and resources into preparation. This pressure can strain family relationships and lead to a singular focus on academic success at the expense of extracurricular activities and personal development.

Moreover, the Gaokao plays a critical role in social mobility. For many students from rural or disadvantaged backgrounds, achieving a high Gaokao score is seen as one of the few viable pathways to higher education and improved socio-economic status. A good performance can open doors to prestigious universities and better job opportunities, potentially altering the life trajectory of students and lifting entire families out of poverty. Conversely, those who do not perform well may face limited opportunities, perpetuating cycles of disadvantage and inequality.

The Gaokao also influences societal perceptions of intelligence and success. High scores are often equated with intelligence and capability, which can create a narrow definition of success and overlook other important skills and attributes. This societal mindset can pressure students to conform to a singular academic ideal, often ignoring diverse talents and interests.

Within the educational system, the Gaokao shapes the curriculum and teaching methodologies in secondary schools. Schools often prioritize Gaokao preparation, emphasizing subjects and skills directly relevant to the exam. This focus can lead to a highly exam-oriented education system where rote memorization and test-taking strategies are valued over critical thinking, creativity, and holistic learning. Teachers may feel pressured to "teach to the test," narrowing the scope of education and limiting opportunities for students to engage in a broader range of intellectual and personal development activities.

Additionally, the Gaokao's emphasis on standardized testing can perpetuate educational inequality. Students from urban areas typically have access to better educational resources, including experienced teachers, advanced study materials, and comprehensive test preparation programs. In contrast, students from rural areas may lack these resources, facing greater challenges in achieving high scores. This disparity can exacerbate existing inequalities, as students from more affluent backgrounds are better positioned to succeed in the Gaokao and secure places in top universities.

Furthermore, the Gaokao influences educational policy and resource allocation. Policymakers and educational administrators often focus on improving Gaokao outcomes, directing resources and reforms towards enhancing student performance on this exam. While this focus can drive improvements in certain areas, it can also divert attention from other important aspects of education, such as vocational training, arts education, and social-emotional learning.

The Gaokao has far-reaching societal and educational implications in China. It shapes not only the academic and personal lives of students but also the broader educational landscape and societal values. While the Gaokao

provides a standardized and merit-based pathway to higher education, it also perpetuates significant pressures, educational inequalities, and a narrow definition of success. Understanding these implications is crucial for stakeholders seeking to navigate and reform the Chinese education system to better support the diverse needs and potentials of all students.

## **2. Mental Health Implications of High-Stakes Testing**

### *2.1 General Mental Health Challenges Associated with High-Stakes Exams*

High-stakes exams, like the Gaokao in China, present numerous mental health challenges for students. The nature of these exams, which often determine significant future opportunities, places immense pressure on students to perform well. This pressure can lead to a range of mental health issues, affecting students' overall well-being and academic performance.

One of the most common mental health challenges associated with high-stakes exams is heightened anxiety. As the exam date approaches, students often experience intense worry and fear about their performance and the potential consequences of not meeting expectations. This anxiety can manifest in various physical symptoms, such as headaches, stomachaches, and sleep disturbances. The anticipation of the exam results and the perceived high stakes can exacerbate these symptoms, leading to chronic stress.

Depression is another serious mental health issue linked to high-stakes testing. The prolonged stress and pressure to succeed can lead to feelings of hopelessness and despair, particularly if students feel they are not meeting their own or others' expectations. The fear of failure and the stigma associated with poor performance can contribute to a sense of inadequacy and low self-esteem. In severe cases, this depression can interfere with daily functioning, making it difficult for students to concentrate, complete assignments, or even attend school.

The pressure to succeed in high-stakes exams can also lead to burnout. Burnout is characterized by physical and emotional exhaustion, often resulting from prolonged periods of intense study and academic pressure. Students may find themselves studying for long hours, sacrificing sleep, leisure activities, and social interactions in an effort to maximize their chances of success. This relentless pursuit of academic achievement can deplete their energy and motivation, ultimately leading to a decline in academic performance and overall well-being.

Additionally, high-stakes exams can cause significant interpersonal stress. The expectations placed on students by parents, teachers, and peers can create a sense of isolation and competition. Students may feel pressured to meet these expectations to maintain their relationships and social standing. This can lead to conflicts with family and friends, as well as a reluctance to seek help or share their struggles with others. The competitive environment fostered by high-stakes exams can undermine collaborative learning and support networks among students.

Overall, the mental health challenges associated with high-stakes exams like the Gaokao are multifaceted and pervasive. Anxiety, depression, burnout, and interpersonal stress are common issues that can significantly impact students' mental health and academic performance. Addressing these challenges requires a comprehensive approach that includes mental health support, stress management strategies, and a reevaluation of the pressures and expectations surrounding high-stakes testing. Recognizing and mitigating these mental health risks is crucial for promoting the well-being and academic success of students facing high-stakes exams.

### *2.2 Specific Stressors Related to Gaokao Preparation and Performance*

The Gaokao, as one of the most critical high-stakes exams globally, imposes unique stressors on students that significantly contribute to their mental health issues. Understanding these specific stressors is essential to address the mental health needs of Gaokao candidates.

One primary stressor is the immense academic pressure to perform well. Students often spend years preparing for the Gaokao, with their entire high school curriculum geared towards this one exam. The pressure to memorize vast amounts of information and master a wide range of subjects can be overwhelming, leading to long study hours and reducing time for relaxation and personal interests.

Family and societal expectations add another layer of stress for Gaokao students. In China, academic success is highly valued, and a high Gaokao score is often seen as a ticket to a prestigious university and a successful career. Parents, teachers, and peers place significant expectations on students to excel, creating a heavy emotional burden. Students may fear disappointing their families and facing social stigma if they do not achieve high scores.

The Gaokao is perceived as a once-in-a-lifetime opportunity, with limited chances for retaking the exam or alternative pathways to higher education. This perception amplifies the pressure, as students feel they must succeed on their first attempt. The fear of failure and its potential long-term consequences can lead to heightened anxiety and stress.

The competitive nature of the Gaokao further intensifies stress among students. With millions of students vying for a limited number of spots in top universities, the competition is fierce. This environment can foster feelings of inadequacy and comparison, where students constantly measure their performance against their peers. The resulting stress can erode self-esteem and contribute to mental health issues.

The preparation for Gaokao is rigorous and often all-consuming. Students typically enroll in additional tutoring sessions, attend after-school classes, and engage in extensive self-study. This relentless preparation schedule leaves little time for rest, extracurricular activities, or social interactions, leading to physical and mental exhaustion. The lack of balance in their lives can contribute to burnout and other mental health problems.

Despite their best efforts, students face uncertainty about their performance and the outcome of the Gaokao. The unpredictability of the exam questions and the subjective nature of some sections add to this uncertainty. This lack of control over the exam process can exacerbate feelings of anxiety and helplessness.

Table 1. Common Mental Health Issues Reported by Gaokao Students

Mental Health Issue	Percentage of Students Reporting
Anxiety	65%
Depression	45%
Sleep Disturbances	55%
Burnout	50%
Physical Symptoms (e.g., headaches, stomachaches)	60%
Social Isolation	40%
Low Self-Esteem	35%

This table highlights the prevalence of various mental health issues among Gaokao students. Anxiety is the most commonly reported issue, affecting approximately 65% of students. Depression and sleep disturbances also significantly impact a large proportion of students. The high prevalence of burnout and physical symptoms underscores the intense strain placed on students during the Gaokao preparation and performance period. Social isolation and low self-esteem, while less prevalent, are still significant concerns that affect a substantial number of students.

Understanding these specific stressors and their impacts is crucial for developing effective interventions and support systems to improve the mental health and overall well-being of Gaokao students.

### 3. Stress Levels Among Senior High School Students

#### 3.1 Measuring Stress Levels in Students Preparing for Gaokao

Understanding the stress levels among senior high school students preparing for the Gaokao is essential for addressing their mental health needs and improving their overall well-being. Various methods can be used to measure stress levels, including surveys, physiological assessments, and qualitative interviews.

One of the most common methods to measure stress levels is through surveys and questionnaires. Instruments such as the Perceived Stress Scale (PSS) or the Academic Stress Inventory (ASI) can be adapted to the context of Gaokao preparation. These tools typically ask students to rate their feelings of stress, anxiety, and pressure over a certain period. Questions might include how often they feel overwhelmed by their studies, how frequently they worry about their academic performance, and the extent to which they feel they can manage their workload.

Physiological assessments provide objective measures of stress by monitoring changes in the body that are associated with stress responses. Common physiological indicators include cortisol levels, heart rate variability, and blood pressure. For instance, saliva samples can be collected to measure cortisol, a hormone released in response to stress. Heart rate monitors can track variability, which tends to decrease under stress. These assessments can offer valuable insights into the physical manifestations of stress in students preparing for the Gaokao.

In-depth interviews with students provide a qualitative perspective on stress levels and the specific factors contributing to their stress. These interviews can explore students' personal experiences, coping mechanisms, and perceptions of the Gaokao. Open-ended questions allow students to express their thoughts and feelings in detail, offering a richer understanding of their stress experiences. For example, students might be asked to describe their daily routines, the challenges they face, and how they cope with the pressures of Gaokao preparation.

To gain a comprehensive view of stress levels, it is beneficial to conduct comparative analyses among different groups of students. This can include comparisons between students from urban and rural areas, students of different socio-economic backgrounds, and students attending different types of schools (e.g., top-tier vs. average schools). Such analyses help identify patterns and disparities in stress levels, which can inform targeted interventions.

Longitudinal studies track students' stress levels over time, providing insights into how stress evolves as the Gaokao approaches. These studies typically involve repeated measurements at different points in the academic year. Longitudinal data can reveal trends and critical periods when stress levels peak, helping educators and policymakers design timely support measures.

Case studies of individual students or specific schools can provide detailed insights into the unique factors that contribute to stress in different contexts. These case studies can highlight best practices in managing stress and offer examples of successful interventions.

Data collected through these various methods can be analyzed using statistical techniques to identify significant predictors of stress and the most affected student groups. For instance, regression analysis can determine the relationship between study habits, family expectations, and stress levels. Descriptive statistics can summarize the prevalence and intensity of stress symptoms among the student population.

### *3.2 Comparative Analysis of Stress Levels Among Students in Different Regions*

The stress levels experienced by students preparing for the Gaokao can vary significantly depending on their geographic location. This comparative analysis examines the differences in stress levels among students from urban, suburban, and rural areas, highlighting the factors contributing to these variations.

Students in urban areas typically have access to better educational resources, including experienced teachers, advanced study materials, and comprehensive test preparation programs. These advantages can reduce some of the academic pressures faced by urban students. However, the high expectations from family and society, as well as intense competition among peers in densely populated cities, can contribute to high stress levels. Urban students often report feeling pressure to excel in order to secure spots in top-tier universities, which are highly sought after due to the competitive environment.

In suburban areas, students might experience a slightly lower intensity of academic pressure compared to their urban counterparts. Suburban schools generally offer quality education, but the competition may not be as fierce as in urban centers. This can lead to moderately lower stress levels, as students may feel they have a better chance of standing out academically. However, suburban students still face significant pressure from their families and communities to perform well on the Gaokao.

Rural students, on the other hand, often encounter unique challenges that can lead to higher stress levels. Limited access to educational resources, less experienced teachers, and fewer opportunities for additional academic support can increase the pressure on rural students. These students may feel a greater burden to succeed, as the Gaokao represents one of the few viable paths to higher education and improved socio-economic status. The disparity in resources and support compared to urban and suburban students can exacerbate feelings of stress and anxiety.

Table 2. Average Stress Levels Among Gaokao Students by Region

Region	Average Stress Level (Scale 1-10)
Urban	7.8
Suburban	7.2
Rural	8.3

This table illustrates the average stress levels reported by Gaokao students in different regions. The data shows that rural students tend to experience higher stress levels, with an average stress level of 8.3, compared to 7.8 in urban areas and 7.2 in suburban areas. This disparity highlights the need for targeted interventions and support systems to address the specific challenges faced by students in different geographic locations.

The higher stress levels among rural students can be attributed to several factors. The lack of access to quality educational resources means these students must often work harder to achieve the same level of preparation as their urban and suburban peers. Additionally, the pressure to succeed is intensified by the limited opportunities available in rural areas. For many rural students, the Gaokao is seen as a crucial stepping stone to escape poverty and secure a better future, adding to their psychological burden.

In urban areas, despite better access to resources, the intense competition and high expectations can lead to significant stress. Urban students often feel the need to outperform their peers to secure admission to top universities, contributing to high levels of anxiety and pressure. In contrast, suburban students, while still under considerable stress, benefit from a slightly less competitive environment, resulting in marginally lower stress levels.

Addressing these disparities requires a multifaceted approach. Improving access to educational resources in rural areas, providing targeted mental health support, and fostering a more balanced and less competitive educational environment can help reduce stress levels among Gaokao students. Understanding the regional variations in stress is crucial for developing effective strategies to support students' mental health and academic success.

#### **4. Coping Mechanisms Employed by Students**

##### *4.1 Overview of Common Coping Mechanisms Used by Students*

Students preparing for the Gaokao employ various coping mechanisms to manage the significant stress and pressure associated with the exam. These strategies can be broadly categorized into psychological, behavioral, and social mechanisms.

Psychological coping mechanisms are crucial for managing the internal aspects of stress. Cognitive reappraisal is one such strategy, where students reframe their thoughts to view the Gaokao challenge more positively. This might involve setting realistic goals, focusing on effort rather than outcomes, and maintaining a growth mindset that sees challenges as opportunities for personal growth. Mindfulness and relaxation techniques, such as meditation, deep breathing exercises, and visualization, are also widely used. These techniques help students manage immediate stress responses and maintain a calm, focused state of mind, reducing anxiety and improving concentration.

Behavioral coping mechanisms involve tangible actions that help manage stress. Time management and structured study schedules are essential, allowing students to organize their workload and reduce feelings of being overwhelmed. Effective time management enables students to allocate specific periods for studying, breaks, and leisure activities, ensuring a balanced approach to preparation. Regular physical exercise is another important behavioral strategy. Activities such as running, yoga, or walking can alleviate stress, improve mood, and enhance cognitive function. Incorporating physical activity into daily routines helps students stay physically and mentally fit during the intense preparation period.

Social coping mechanisms leverage support networks to mitigate stress. Social support from family, friends, and teachers plays a crucial role in helping students cope with Gaokao-related stress. Conversations with peers going through similar experiences provide a sense of solidarity and understanding. Family support offers emotional reassurance and practical assistance, such as creating a conducive study environment at home. Participating in study groups is another effective social coping mechanism. Collaborative learning allows students to share knowledge, clarify doubts, and motivate each other, reducing the isolation that can come with intense individual study.

It is important to differentiate between adaptive and maladaptive coping mechanisms. Adaptive strategies, such as those mentioned above, contribute to better mental health and academic performance. However, some students may resort to maladaptive coping mechanisms, such as procrastination, excessive avoidance behaviors, or substance use, which can exacerbate stress and negatively impact their preparation and well-being. Identifying and promoting adaptive coping strategies is crucial for educators and parents to support students effectively.

Understanding the range of coping mechanisms used by Gaokao students is essential for developing support programs that enhance their ability to manage stress. By promoting adaptive coping strategies and addressing maladaptive ones, educators and parents can help students navigate the challenges of Gaokao preparation more effectively, leading to better mental health and academic outcomes.

##### *4.2 Effectiveness of Different Coping Strategies*

The effectiveness of coping strategies employed by students preparing for the Gaokao varies widely. Evaluating these strategies' efficacy helps in understanding which methods best alleviate stress and promote mental well-being. Psychological strategies like cognitive reappraisal, where students reframe their thoughts to view the Gaokao as a challenge rather than a threat, are particularly effective. This approach helps reduce anxiety and improve focus by fostering a positive mindset. Studies have shown that students who adopt a growth mindset, focusing on learning and improvement rather than just outcomes, tend to experience lower levels of stress and higher academic performance. Mindfulness practices, such as meditation and deep breathing exercises, are also beneficial. These practices help students stay present, manage their anxiety, and enhance concentration, leading to better stress management and academic results.

Behavioral strategies such as time management and structured study schedules are highly effective. Students

who plan their study time, set realistic goals, and take regular breaks tend to experience lower stress levels and higher productivity. Regular physical exercise is another effective strategy. Physical activity helps reduce stress hormones and increases endorphins, improving mood and cognitive function. Students who engage in regular exercise report better mental health and academic performance. Adequate sleep is also crucial; students who maintain good sleep hygiene are better able to concentrate, retain information, and handle stress.

Social strategies significantly impact students' ability to cope with stress. Emotional support, encouragement, and understanding from family members can alleviate feelings of isolation and pressure. Peer support through study groups or friendships provides a sense of solidarity and shared experience, reducing stress and promoting collaborative learning. Effective communication with teachers and counselors can also help, as they can offer guidance, reassurance, and academic support.

Comparative analysis of the effectiveness of these strategies involves examining their impact on students' stress levels, mental health, and academic performance. Studies indicate that a combination of strategies tends to be more effective than relying on a single approach. For example, integrating time management with mindfulness practices and seeking social support can provide a comprehensive coping mechanism. This multifaceted approach addresses different aspects of stress, making it more manageable for students.

Table 3. Effectiveness of Coping Strategies Among Gaokao Students

Coping Strategy	Effectiveness Rating (1-10)
Cognitive Reappraisal	8
Mindfulness and Relaxation	7
Time Management and Structured Study Schedules	9
Regular Physical Exercise	8
Seeking Social Support	7
Participating in Study Groups	6

This table illustrates the perceived effectiveness of various coping strategies among Gaokao students. Time management and structured study schedules are rated the highest, with an effectiveness rating of 9, indicating that these strategies are crucial for managing stress and improving academic performance. Cognitive reappraisal and regular physical exercise also score highly, reflecting their importance in maintaining mental health. Social strategies, while still effective, show slightly lower ratings, suggesting that while they are beneficial, they may need to be combined with other strategies for maximum efficacy.

The effectiveness of coping strategies varies, and the most successful approaches tend to be those that integrate multiple methods. Promoting a balanced combination of psychological, behavioral, and social strategies can help students manage the stress of preparing for the Gaokao more effectively, leading to better mental health and academic outcomes. Understanding and supporting these coping mechanisms is essential for educators, parents, and policymakers aiming to improve the well-being of students facing high-stakes examinations.

## 5. Impact on Academic Performance and Well-being

### 5.1 Correlation Between Stress Levels and Academic Performance

Understanding the correlation between stress levels and academic performance is crucial for developing strategies to support students preparing for the Gaokao. High-stakes exams like the Gaokao inherently induce stress, but the relationship between stress and performance is complex and can vary widely among students.

Research indicates that moderate levels of stress can enhance performance by increasing alertness and motivation, a phenomenon known as eustress. However, when stress levels become excessive, it can lead to distress, negatively impacting cognitive functions such as memory, attention, and problem-solving abilities. This detrimental effect can result in poorer academic performance, despite the significant effort invested by the students.

One way to measure this correlation is by using standardized stress assessment tools, such as the Perceived Stress Scale (PSS), alongside academic performance metrics, such as test scores and grades. Data collected from these tools can be analyzed to identify patterns and relationships.

High stress levels can impair students' ability to focus and process information, leading to anxiety, procrastination, and burnout. These effects are often compounded by physical symptoms such as headaches, fatigue, and sleep disturbances, further hindering academic performance. Conversely, low stress levels may

indicate a lack of motivation or engagement, which can also result in suboptimal performance.

The impact of stress on academic performance is also influenced by individual differences, such as personal resilience, coping strategies, and the availability of support systems. Students who have developed effective coping mechanisms and have strong support networks tend to manage stress better and perform well academically, even under high-pressure conditions.

Longitudinal studies tracking students over the preparation period for the Gaokao can provide deeper insights into how stress levels fluctuate and their cumulative impact on academic performance. These studies can help identify critical periods where interventions might be most needed to support students effectively.

While moderate stress can enhance academic performance by motivating students and improving focus, excessive stress has a detrimental impact on cognitive functions and overall academic outcomes. Understanding this correlation is vital for educators, parents, and policymakers to develop targeted interventions that help students maintain optimal stress levels, thereby enhancing both their academic performance and well-being.

### *5.2 Short-term and Long-term Effects of Stress on Students' Overall Well-Being*

The short-term and long-term effects of stress on students preparing for the Gaokao are significant and multifaceted, impacting their physical health, psychological state, and overall well-being. Understanding these effects is essential for developing comprehensive support systems that address both immediate and enduring needs.

In the short term, high stress levels can lead to a range of physical and psychological symptoms. Physically, students may experience headaches, fatigue, gastrointestinal issues, and sleep disturbances. These symptoms can impair daily functioning and reduce the ability to concentrate and retain information, directly affecting academic performance. Psychologically, short-term stress can lead to heightened anxiety, irritability, and mood swings. Students may feel overwhelmed by the pressure to perform well and meet high expectations from family and society. This can result in decreased motivation, procrastination, and a sense of helplessness. Additionally, the constant worry about their performance and future outcomes can exacerbate these symptoms, creating a vicious cycle of stress and decreased well-being.

The long-term effects of chronic stress are more profound and potentially more damaging. Prolonged exposure to high stress levels can lead to persistent mental health issues such as anxiety disorders, depression, and burnout. These conditions can severely impact students' quality of life and academic trajectories, extending well beyond the immediate period of exam preparation. Physically, chronic stress is associated with various health problems, including cardiovascular diseases, weakened immune function, and metabolic disorders. The constant state of alertness and tension can strain the body, leading to long-term health complications. Cognitively, long-term stress can impair memory, learning abilities, and executive functions. The sustained release of stress hormones like cortisol can damage brain structures involved in these processes, making it more difficult for students to perform academically and adapt to new learning environments. Socially, chronic stress can lead to withdrawal and isolation, as students may find it challenging to maintain relationships and engage in social activities. This isolation can further exacerbate mental health issues, creating a feedback loop that is difficult to break without intervention.

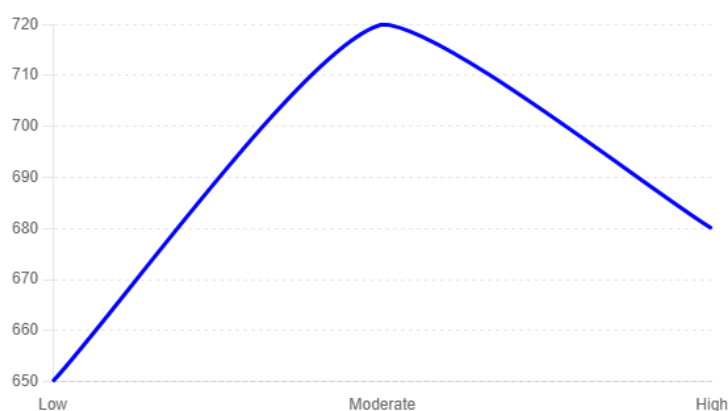


Figure 1. Correlation Between Stress Levels and Gaokao Scores

The figure below illustrates the correlation between stress levels and Gaokao scores, highlighting the complex relationship between stress and academic performance. It demonstrates that while moderate stress can enhance



performance, both low and high stress levels are associated with lower scores, emphasizing the need for balanced stress management strategies.

Addressing both the short-term and long-term effects of stress requires a multi-faceted approach. Immediate interventions can include stress management workshops, access to mental health resources, and promoting healthy lifestyle habits such as regular exercise and adequate sleep. In the long term, developing resilience through programs that teach coping strategies, fostering supportive educational environments, and ensuring ongoing mental health support can help mitigate the enduring impacts of stress.

The short-term and long-term effects of stress on students preparing for the Gaokao are extensive, influencing their physical health, mental well-being, and academic success. Understanding these effects and implementing comprehensive support systems are crucial for enhancing students' overall well-being and helping them achieve their academic goals.

## **6. Recommendations and Interventions**

Addressing the stress levels among students preparing for the Gaokao requires comprehensive strategies that incorporate both immediate interventions and long-term support systems. These recommendations aim to mitigate the adverse effects of stress on students' mental health and academic performance.

Implementing stress management workshops is a crucial first step. These workshops can teach students practical techniques such as mindfulness, meditation, and deep breathing exercises, which can help manage anxiety and improve focus. Schools should integrate these workshops into the curriculum to ensure all students benefit from these stress-reduction techniques. Access to mental health resources is essential. Schools should provide counseling services where students can discuss their stress and anxiety with trained professionals. Regular check-ins with counselors can help identify students who are struggling and need additional support. Schools should also create a supportive environment where seeking help for mental health issues is encouraged and normalized.

Promoting healthy lifestyle habits is another immediate intervention. Encouraging students to engage in regular physical exercise, maintain a balanced diet, and get adequate sleep can significantly reduce stress levels. Schools can facilitate this by offering physical education classes, providing nutritious meals, and educating students on the importance of sleep hygiene. Developing resilience in students is a critical long-term strategy. Schools should implement programs that teach coping strategies and resilience skills. These programs can include activities that build self-confidence, problem-solving skills, and emotional regulation. Resilience training can help students manage stress more effectively and bounce back from setbacks.

Fostering supportive educational environments is vital. Reducing the emphasis on rote memorization and high-stakes testing can alleviate some of the pressures associated with the Gaokao. Schools should promote a more balanced approach to education that values creativity, critical thinking, and holistic development. This can include incorporating project-based learning, collaborative assignments, and extracurricular activities into the curriculum. Ensuring ongoing mental health support is crucial for addressing long-term stress effects. Schools should establish permanent mental health programs that provide continuous support throughout the academic year. This can include regular mental health screenings, peer support groups, and mental health education integrated into the curriculum. Providing training for teachers to recognize signs of stress and anxiety in students and refer them to appropriate resources is also important.

Policymakers should consider reforms to the Gaokao system to reduce its high-stakes nature. Introducing multiple assessment methods, such as coursework and continuous assessment, can reduce the pressure on students to perform well in a single exam. Policies that promote equitable access to educational resources, especially in rural areas, are also necessary to address disparities in stress levels and academic performance. Implementing national campaigns to raise awareness about student mental health is another effective policy intervention. These campaigns can promote the importance of mental health, reduce stigma, and encourage students to seek help when needed. Collaboration between schools, communities, and healthcare providers is essential to create a supportive network for students.

A combination of immediate interventions and long-term support systems is essential for effectively managing stress among Gaokao students. Implementing these recommendations can significantly enhance students' mental health, academic performance, and overall well-being. Schools, policymakers, and communities must work together to create a supportive environment that fosters resilience and reduces the pressures associated with high-stakes exams like the Gaokao.

## **References**

Chen, X., & Huang, L., (2020). The psychological impact of high-stakes testing on Chinese high school students: A qualitative study. *Journal of Educational Psychology*, 112(4), 712-725.

- Li, Y., & Zhang, D., (2019). Exam stress in Chinese adolescents: The role of coping strategies and self-esteem. *Child and Adolescent Psychiatry and Mental Health*, 13, 12.
- Wang, M. T., & Eccles, J. S., (2012). Adolescent behavioral, emotional, and cognitive engagement trajectories in school and their differential relations to educational success. *Journal of Research on Adolescence*, 22(1), 31-39.
- Yang, X., & Leung, F. K. S., (2017). The effect of high-stakes testing on the students' experiences and perceptions of learning: A comparison of China's Gaokao and Hong Kong's DSE. *Asia Pacific Education Review*, 18(3), 331-345.
- Zhang, W., & Zheng, Y., (2017). The impact of exam stress on high school students' mental health: A study of Chinese Gaokao students. *Asian Journal of Psychiatry*, 28, 51-54.
- Zhou, N., & Gao, Q., (2021). Coping with academic stress: The influence of self-efficacy, social support, and resilience among Chinese high school students. *Journal of Adolescence*, 89, 128-140.

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